

WHAT IS CLAIMED IS:

1. A communication system comprising:

plural switching devices, each thereof possessing plural ports;

a terminal operable to be connected to any one of the plural ports of one of said plural switching devices; and

a management device comprising a configuration information generating unit operable to generate configuration information of a network composed of said plural switching devices and plural pieces of said terminal,

wherein each of said plural switching devices further comprises a MAC address table operable to store information of a source MAC address, the MAC address table being assigned to each of the plural ports, and

wherein said terminal comprises:

a packet receiving unit operable to receive a packet;

a packet sending unit operable to send a packet;

a link-state detecting unit operable to detect a link-up for each of said plural switching devices; and

a configuration-change notifying unit operable, when the link-state detecting unit detects a link-up, to send said management device notice of a change of a network configuration using the packet sending unit.

2. The communication system as defined in claim 1, wherein the notice is sent in one or more link-change notifying packets.

3. The communication system as defined in claim 1, wherein the notice is sent in one or more substitute packets other than the one or more link-change notifying packets.

4. The communication system as defined in claim 3, wherein the notice sent in the one or more substitute packets includes one of an ICMP message, information of services available at said terminal, and information of a phone number of said terminal.

5. The communication system as defined in claim 1, wherein the notice is sent by at least one of a multi-cast and a broadcast.

6. The communication system as defined in claim 1, wherein said management device comprises an information acquiring unit operable, in receipt of the notice from said terminal, to acquire pieces of information of MAC address concerning the ports from said plural switching devices, and

wherein the configuration information generating unit updates the configuration information of the network, based on the pieces of information acquired by the information acquiring unit.

7. The communication system as defined in claim 6, wherein the information acquiring unit acquires information of MAC address using an SNMP.

8. The communication system as defined in claim 6, wherein the information acquiring unit acquires information of MAC address only from said plural switching devices exiting in a path from said terminal having sent the notice to said management device.

9. A terminal comprising:

a packet receiving unit operable to receive a packet;

a packet sending unit operable to send a packet;

a link-state detecting unit operable to detect a link-up for each of plural switching devices; and

a configuration-change notifying unit operable, when said link-state detecting unit detects a link-up, to send a management device notice of network configuration change using said packet sending unit.

10. The terminal as defined in claim 9, wherein the notice of the network configuration change is sent by at least one of a multi-cast and a broadcast.

11. A communication system comprising:

plural switching devices, each thereof possessing plural ports; and

a terminal operable to be connected to any one of the plural ports of one of said plural switching devices,

wherein said terminal comprises:

a packet receiving unit operable to receive a packet;

a packet sending unit operable to send a packet;

a link-state detecting unit operable to detect a link-up for each of said plural switching devices;

a resource reservation table operable to store network resource reservation information of said terminal and a communication partner's terminal; and

a configuration-change notifying unit operable, when the link-state detecting unit detects a link-up, to send the communication partner's terminal notice of the network resource reservation information stored in the resource reservation table using the packet sending unit.

12. The communication system as defined in claim 11, wherein the notice of the network resource reservation information is sent by at least one of a multi-cast and a broadcast.

13. The communication system as defined in claim 11, wherein the notice of the network resource reservation information is sent only to the communication partner's terminal stored in the resource reservation table.

14. The communication system as defined in claim 11, wherein securing network resource based on the network resource reservation information is practiced by an RSVP.

15. A communication system comprising:

plural switching devices, each thereof possessing plural ports;

a terminal operable to be connected to any one of the plural ports of one of said plural switching devices; and

a management device comprising a network resource management table

operable to store network resource reservation information of a network, the network comprising said plural switching devices and plural pieces of said terminal, said management device further comprising a network resource managing unit operable to manage resources of the network,

wherein said terminal comprises:

a packet receiving unit operable to receive a packet;

a packet sending unit operable to send a packet;

a link-state detecting unit operable to detect a link-up for each of said plural switching devices;

a resource reservation table operable to store network resource reservation information between said terminal and a communication partner's terminal; and

a configuration-change notifying unit operable, when the link-state detecting unit detects a link-up, to send said management device notice of the network resource reservation information stored in the network resource management table, using the packet sending unit.

16. The communication system as defined in claim 15, wherein the network resource managing unit of said management device is operable to generate reservation availability information indicating availability of a network resource reservation requested by said terminal, after examining the network resource reservation information received from said terminal, the network resource managing unit updates the network resource reservation information stored in the network resource management table, based on the reservation availability information, and the network resource managing unit sends notice of the reservation availability information to said terminal and a communication partner's terminal.

17. A terminal comprising:

a packet receiving unit operable to receive a packet;

a packet sending unit operable to send a packet;

a link-state detecting unit operable to detect a link-up for each of plural switching devices;

a resource reservation table operable to store network resource reservation information of said terminal and a terminal of a communication partner of said terminal;
and

a configuration-change notifying unit operable, when said link-state detecting unit detects a link-up, to send notice of the network resource reservation information stored in said resource reservation table to the terminal of the communication partner.

18. The terminal as defined in claim 17, wherein the notice of the network resource reservation information is sent by at least one of a multi-cast and a broadcast.

19. A communication system comprising:

plural switching devices, each thereof possessing plural ports;

a terminal operable to be connected to any one of the plural ports of one of said plural switching devices, and

a management device operable to manage a network composed by said plural switching devices and plural pieces of said terminal,

wherein each of said plural switching devices further comprises a MAC address table operable to store information of a source MAC address, the MAC address table being assigned to each of the plural ports,

wherein said terminal comprises:

a packet receiving unit operable to receive a packet;

a packet sending unit operable to send a packet;

a link-state detecting unit operable to detect a link-up for each of said plural switching devices;

a resource reservation table operable to store network resource reservation information between said terminal and a communication partner's terminal; and

a configuration-change notifying unit operable to send said management device

notice of a configuration change in the network and notice of the network resource reservation information,

wherein said management device comprises:

a packet receiving unit operable to receive a packet;

a packet sending unit operable to send a packet;

an information acquiring unit operable to acquire pieces of information of a MAC address concerning the ports from said plural switching devices;

a configuration information generating unit operable to generate configuration information of the network;

a network resource management table operable to store network resource reservation information of the network; and

a network resource managing unit operable to manage a network resource of the network,

wherein when the link-state detecting unit detects a link-up, said terminal sends said management device notice of the configuration change of the network and notice of the network resource reservation information stored in the network resource management table, and

wherein when said management device receives the notice from said terminal, the information acquiring unit acquire pieces of information of a MAC address concerning the ports from said plural switching devices, the configuration information generating unit updates the network configuration information, based on the pieces of information acquired by the information acquiring unit, and the network resource managing unit generates reservation availability information indicating availability of a network resource reservation requested by said terminal, after examining the network resource reservation information received from said terminal, the network resource managing unit updates the network resource reservation information stored in the network resource management table, based on the reservation availability information,

and the network resource managing unit sends notice of the reservation availability information to said terminal and a communication partner's terminal.

20. The communication system as defined in claim 19, wherein the notice is sent in one or more link-change notifying packets.

21. The communication system as defined in claim 19, wherein the notice is sent in one or more substitute packets other than the one or more link-change notifying packets.

22. The communication system as defined in claim 19, wherein the notice sent in the one or more substitute packets includes one of an ICMP message, information of services available at said terminal, information of a phone number of said terminal, and the network resource reservation information.

23. The communication system as defined in claim 19, wherein the notice is sent by at least one of a multi-cast and a broadcast.

24. The communication system as defined in claim 19, wherein the information acquiring unit acquires information of MAC address using an SNMP.

25. The communication system as defined in claim 19, wherein the information acquiring unit acquires information of MAC address only from said plural switching devices existing in a path from said terminal having sent the notice to said management device.

26. The communication system as defined in claim 1, wherein said plural switching devices are base stations constituting a wireless LAN, and the link-state detecting unit is operable to detect a change of connection at one of the base stations as a link-up.